

### REMARKS

Claims 4 and 7-9 are pending for further examination. Claim 4 is currently amended.  
Claims 7-9 are new.

#### Specification

Applicants have added a new abstract as required by the Office action.

Applicants have added a new title as required by the Office action.

#### 35 U.S.C. § 112 Claim Rejections

Claim 4 was rejected as indefinite because the limitation “the external electrodes” was unclear.

In addition, claim 4 was rejected as indefinite because the limitation “a plating containing no tin is applied to the terminal electrodes of the chip component” was unclear.

Applicants have amended claim 4 to address those rejections and respectfully request withdrawal of the rejections and reconsideration of the claim.

#### 35 U.S.C. § 102 Claim Rejection

Claim 4 was rejected as anticipated by Okabe et al. (U.S. Patent No. 6,889,431).

Claim 4 recites a hybrid integrated circuit that includes a chip component having terminal electrodes formed at both ends, conductive wiring layers having pads that correspond to the terminal electrodes, an overcoat resin for covering the conductive wiring layers excluding the pads, external electrodes that have a brazing material to provide electrical connection to the conductive wiring layers, a plating, that does not contain tin, on the terminal electrodes and a brazing material which adheres the terminal electrodes to the pads. The melting point of the brazing material used with the terminal electrodes is higher than the melting point of the material used with the external electrodes.

An example of those features is shown in FIGS. 2 and 15 of the present specification in which a chip component 43 having terminal electrodes 46 is attached to pads 38 of a conductive

wiring layer using a brazing material 56 that has a higher melting point than external electrodes 48 (pg. 15, line 24 – pg. 16, line 7). When the external electrodes 48 are heated during fusing of the hybrid integrated circuit to a printed wiring board 53, the heat is transmitted through the conductive wiring layers to pads 38 and terminal electrodes 46. Since the brazing material 56 has a higher melting point than the external electrodes 48, the material 56 will not melt. In some implementations, for example, this feature may prevent a short-circuit between the pads 38. Furthermore, since the plating on terminal electrodes 46 does not contain tin (pg. 17, lines 6-8), the melting point of the brazing material 56 may not be reduced due to diffusion of tin from the plating into the brazing material 56.

In contrast, the Okabe patent does not disclose or suggest the features recited in pending claim 4.

The Okabe patent discloses a manufacturing method for an electronic circuit device. As FIG. 2H of the Okabe patent shows, the electronic circuit device includes a chip component 45 soldered to the upper part of conductive pattern 15a, which is one of several conductive patterns in a multi-layer wiring board (col. 9, lines 60-65). An epoxy resin corresponding to dielectric layers 23, 24, 25 is located in between the conductive patterns (col. 9, lines 47-56).

The Okabe patent does not, however, disclose or suggest “external electrodes made of a brazing material” that are electrically connected to conductive wiring layers as recited in present claim 4. Instead, the Okabe patent discloses only that rear face conductors may be formed of Cu, Au, Ag or Al (col. 10, line 31-36) using *foil* (col. 9., lines 51-52). It is well known to those of ordinary skill in the art that foil and brazing are distinct and separate materials.

In addition, the Okabe patent does not disclose or suggest that terminal electrodes of the chip component 45 are covered with or include a plating that “does not contain tin.” In fact, there is no mention, at all, of a “plating on the terminal electrodes” of chip component 45.

Although the Okabe patent discloses that the chip component 45 is soldered to the upper part of conductor pattern 15a, it does not disclose or suggest that this solder has “a higher melting point than that of a brazing material of external electrodes.” The Okabe patent does not

refer, in any way, to the melting point of the solder or, as mentioned above, disclose or suggest a solder or brazing material that forms external electrodes.

Furthermore, the Office action alleges the epoxy resin 24 of the Okabe patent corresponds to the claimed overcoat resin (pg. 3, Office action). Applicants respectfully disagree. Claim 4 recites that the overcoat resin covers "conductive wiring layers" excluding pads provided to correspond with terminal electrodes of a chip component. Although resin 24 may cover conductor layer 14a, FIG. 2 of the Okabe patent clearly shows that conductor patterns 15a are not covered, in any way, by an overcoat resin.

At least for the foregoing reasons, claim 4 should be allowed.

Claims 7-9 depend from claim 4 and should be allowed for at least the same reason.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.


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No fee is believed due. However, please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 8/2/06

  
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